

Consensus Points – S&TC and IG

September 30, 2011

S&TC C1. For the purposes of the FRPA and its regulations, define both “landslide” and “mass wasting” using the definition under 11 AAC 95.900 (44):

"mass wasting" means the slow to rapid downslope movement of significant masses of earth material of varying water content, primarily under the force of gravity.

IGC 1. The Implementation Group concurs without change.

S&TC C2. Change the terms “unstable slope” and “unstable or slide-prone slope” to “unstable slope or slide-prone area” wherever they appear in the regulations. [Note: this amends the term used in 11 AAC 95.220(a)(9)(A) and .290(d)(2).]

IGC C7. Use the term “unstable area” with regard to the DPO, and use the term “unstable slope” in the other BMPs requiring specific actions. (See definitions in IGC C8)

S&TC C3am. “Unstable slope or slide-prone area” means a slope or area, generally in excess of 50% gradient, where one or more of the following indicators may exist. Slide risk depends on the combination of factors at a given site.

- landslide scar initiation zones,
- jack-strawed trees,
- gullied or dissected slopes,
- a high-density of streams or zero-order basins (source basins for headwater streams), or
- evidence of soil creep.

The S&TC recognizes that slope dissection is a significant indicator of slide risk, but difficult to assess – closely spaced dissections are a red flag, as are few dissections that funnel to a common collecting area. The S&TC recommends that the procedures in Chatwin, et al., 1994 be referenced in assessing landslide risk. One rule of thumb for assessing frequency of dissection would be where dissections are so closely spaced that they preclude split-yarding. This distance is approximately equal to tree height.

The citation for Chatwin et al., 1994 is:

Chatwin, S. C., D. E. Howes, J. W. Schwab, and D. N. Swanston. 1994. A guide for management of landslide-prone terrain in the Pacific Northwest. 2nd ed. British Columbia Ministry of Forests and U.S. Forest Service. 218 pp.

IGC C8 Revise 11 AAC 95.220 (a)(9)(A) as follows:

“(9) the following slope information for areas that are located in cutting units or traversed by roads:

- (A) any known unstable [OR SLIDE-PRONE SLOPE] area. For the purposes of identifying unstable areas under this section, consider sites with slopes generally in excess of 50% gradient, where one or more of the following indicators may exist.

- landslide scars,

- jack-strawed trees,
- gullied or dissected slopes,
- a high-density of streams or zero-order basins (source basins for headwater streams), or
- evidence of soil creep.”

For the regulations that require specific actions in BMPs (11 AAC 95.290, .340, .345, .360. and .365) use the term “unstable slope” and add a definition to the regulations :

“Unstable slope” means a slope exhibiting mass wasting or where mass wasting is likely to occur.”

"Mass wasting" is already defined in the regulations as “the slow to rapid downslope movement of significant masses of earth material of varying water content, primarily under the force of gravity.”

The IG agreed unanimously that these indicators of unstable slopes are helpful and should be included in training for agencies and operators. They did not agree on whether they would best be located in the regulations or in the BMP implementation field book (“purple book”).

For the purposes of identifying unstable slopes, consider sites with slopes generally in excess of 50% gradient, where one or more of the following indicators may exist.

- landslide scars,
- jack-strawed trees,
- gullied or dissected slopes,
- a high-density of streams or zero-order basins (source basins for headwater streams), or
- evidence of soil creep.”

S&TC C4. Leave the term “high risk of slope failure” in 11 AAC 95.280 (d)(1) unchanged.

IGC2. The Implementation Group concurs without change.

S&TC C5am. Add the following term to the definitions in 11 AAC 95.950: **“Unstable fill material”** means organic debris, organic soil, or fine-textured mineral soils. A fine-textured soil has a texture of silty-clay, sandy-clay, or clay.

Change .290(b)(2) as follows:

11 AAC 95.290. Road construction. [...]

“(b) If constructing a road on a slope greater than 67 percent, on an unstable slope[, OR IN A SLIDE-PRONE AREA] is necessary, an operator [...]

(2) shall balance cuts and fills so that as much of the excavated material as is feasible is deposited in the roadway fill section; however, unstable fill material may not¹ be used [IF IT IS UNSTABLE, FINE TEXTURED, OR PRONE TO MASS WASTING] and cuts must be minimized where fine textured soils are known or encountered; “

IGC3am: The Implementation Group supports S&TC C5am with the deletion of “slide-prone area”:

Add the following term to the definitions in 11 AAC 95.950: **“Unstable fill material”** means organic debris, organic soil, or fine-textured mineral soils. A fine-textured soil has a texture of silty-clay, sandy-clay, or clay.”

Change .290(b)(2) as follows:

11 AAC 95.290. Road construction. [...]

(b) If constructing a road on a slope greater than 67 percent, or on an unstable slope [, OR IN A SLIDE-PRONE AREA] is necessary, an operator [...]

(2) shall balance cuts and fills so that as much of the excavated material as is feasible is deposited in the roadway fill section; however, unstable fill material may not be used [IF IT IS UNSTABLE, FINE TEXTURED, OR PRONE TO MASS WASTING] and cuts must be minimized where fine textured soils are known or encountered;

S&TC C6.

Add to **11 AAC 95.360 Cable yarding:** [...]

(c) The following standards apply to cable yarding operations: [...]

(6) on unstable slopes or slide-prone areas, an operator shall minimize disturbance to soils, understory vegetation, stumps, and root systems.

IGC4am. The IG concurs with inserting in **11 AAC 95.360**, but deletes “or slide-prone areas.”

Add to **11 AAC 95.360 Cable yarding:** [...]

(c) The following standards apply to cable yarding operations: [...]

(6) on unstable slopes, an operator shall minimize disturbance to soils, understory vegetation, stumps, and root systems.

S&TC C6, cont.

Add to **11 AAC 95.360 or .340:** In these areas, an operator should consider partial cuts, helicopter yarding, retention areas, or other techniques designed to meet these objectives.

IGC5am. Revise as follows and insert in **11 AAC 95.340**, Harvest unit planning and design:

To minimize disturbance to soils, understory vegetation, stumps, and root systems on unstable slopes, an operator should consider techniques such as partial cuts, retention areas, and use of helicopter or skyline systems to achieve full suspension of logs.

S&TC C7.

Add to **11 AAC 95.365. Tracked and wheeled harvest systems:** (a) A person may not skid timber or operate construction equipment or machinery in a water body catalogued as anadromous under AS 16.05.871, without written approval of the Department of Fish and Game, or in any other surface waters, marshes, [OR]non-forested muskegs, or unstable slopes or slide-prone areas without prior notice to the division except, that equipment may be operated on frozen surface waters, marshes, or non-forested

muskegs without prior notice to the division.

IGC6am. Concur with revision but delete “or slide-prone area.”

Add to **11 AAC 95.365. Tracked and wheeled harvest systems:** (a) A person may not skid timber or operate construction equipment or machinery in a water body catalogued as anadromous under AS 16.05.871, without written approval of the Department of Fish and Game, or in any other surface waters, marshes, [OR]non-forested muskegs, or on unstable slopes without prior notice to the division except, that equipment may be operated on frozen surface waters, marshes, or non-forested muskegs without prior notice to the division.

S&TC C8. Edit 11 AAC 95.290(b)(3) to prohibit blasting in saturated soil conditions:

“(b) If constructing a road on a slope greater than 67 percent, on an unstable slope, or in a slide-prone area is necessary, an operator [...]

(3) may not conduct excavation and blasting activities during saturated soil conditions. [IF MASS WASTING IS LIKELY TO RESULT AND CAUSE DEGRADATION OF SURFACE OR STANDING WATER QUALITY.]

The IG did not reach consensus on this item and deferred to the Board’s August 31, 2011 unanimous recommendation to retain the existing language without the change recommended by the S&TC.

S&TC C9am. With respect to blasting on steep or unstable slopes under 11 AAC 95.290(b)(3), the following indicators should be included to help operators determine when saturated soil conditions exist:

“Evidence of saturated soil conditions on a steep slope or unstable area may include:

- On cutslopes, noticeable soil liquefaction or movement of large soil particles to the ditchline
- Significant water flow evident on the surface, exposed bedrock, or impermeable hardpan
- Excavated or disturbed material performing in a liquid manner
- High rainfall rates in previous 24 hours, e.g., 6 inches in a 24-hour period, or prolonged periods of heavy rainfall
- Heavy rain following extended periods of freezing
- Heavy rain-on-snow events”

The IG agreed unanimously that these indicators are helpful and should be included in training for agencies and operators. They did not agree on whether they would best be located in the regulations or in the BMP implementation field book (“purple book”).

S&TC C10.

Training needs include,

- Identification and mapping for DPOs of “unstable areas,”
 - information available from the scoping maps, digital elevation models, and other sources to identify and map these areas
 - identification of which slopes <67% are unstable, including application of the indicators listed under this definition
- Identification of “saturated soils” and understanding of the indicators for saturation on slopes
- Assessment of likely runout zones for potential slides (e.g., see Chatwin et al., 1994 illustrations)
- Connection between FRPA standards and water quality standards, and sources of information on water uses
- Any changes adopted in regulation or made to the DPO form.

IGC9am. The IG concurs with the S&TC C10 on training needs with the following changes.

Training needs include,

- Identification and mapping for DPOs of “unstable [SLIDE-PRONE] areas, and identification of “unstable slopes” in BMPs
 - information available from the scoping maps, digital elevation models, and other sources to identify and map these areas
 - identification of slopes <67% that are unstable, including application of the [ALL] indicators developed by the S&TC
 - [WHICH SLOPES <67% ARE UNSTABLE OR SLIDE-PRONE]
- Identification of “saturated soils” and understanding of the indicators for saturation on slopes
- Assessment of likely runout zones for potential slides (e.g., see Chatwin et al., 1994 illustrations)
- Connection between FRPA standards and water quality standards, and sources of information on water uses
- Use of purple book – familiarity with information
- Mapping for DPOs, for example .220(6) re yarding techniques and location of landings
- Any changes adopted in regulation or made to the DPO form.

S&TC Non-consensus item: The S&TC did not reach consensus on the issue of whether or not to retain the clause, “and cause degradation of surface or standing water quality” in .290(d). The committee agreed to forward two options to the board as follows. The Board forwarded the issue to the I.G. See S&TC minutes #3, pp. 8-13 for discussion of this issue.

Option A. Leave the text of .290 (d) as is except for the change below:

“(d) An operator shall use end-hauling and full-bench construction techniques if mass wasting from overloading on an unstable slope or slide-prone area or erosion of sidecast material is likely to occur and cause degradation of surface or standing water quality.

Supporters stated that road construction issues are best addressed on a site-by-site basis, that end-haul/full-bench construction may also have landscape impacts, and that the existing and recommended BMPs provide the tools to address road proposals that have the potential to impact water quality or fish habitat.

Option B. change .290(d):

“(d) An operator shall use end-hauling and/or full-bench construction techniques if

1) mass wasting from overloading on an unstable slope or slide-prone area is likely to occur, or

2) erosion of sidecast material is likely to occur and cause degradation of surface or standing water quality.”

Supporters stated that extent of impacts from road construction on an unstable slope or slide-prone area is unpredictable, and that road construction in areas where mass wasting is likely to occur should require end-hauling and full-bench construction to minimize landslide potential.

Neutral. Moselle stated that either option is OK; fish habitat is protected under either option. Landwehr and Baichtal were indifferent with a slight preference for Option A. Landwehr stated that there would be little difference between the options in actual practice.

The IG deferred to the Board’s August 31, 2011 unanimous recommendation to retain the existing language without change.